Provincial Electricity Authority

SUSTAINABLE FINANCE FRAMEWORK

1. INTRODUCTION

1.1 ABOUT THE PROVINCIAL ELECTRICITY AUTHORITY

Thailand's Provincial Electricity Authority (PEA) was established on 28 September 1960, replacing the former Provincial Electricity Organization, which had officially commenced operations on 6 March 1954. During its initial decade, PEA undertook the vital tasks of procuring power generators, and employing skilled technicians for their installation, to facilitate the provision of electricity to underdeveloped regions. Now, in its sixth decade, PEA has undertaken organizational restructuring and improved operational strategies, aiming to provide efficient electricity services while fostering continuous development in terms of quality and service standards. Striving to excel in the electricity business, PEA is committed to meeting customer expectations, creating value for society and the environment through digital technology, and moving toward becoming PEA Digital Utility.

PEA is now a state enterprise in the energy sector under the Ministry of Interior and is regulated by the State Enterprise Policy Office. Our core business is procuring and distributing electricity to consumers in provincial areas. We also offer supplementary services that cater to our customer's needs and explore new business opportunities to capitalize on our assets, knowledge, and capabilities for potential future growth and ventures. We seek to ensure a reliable and adequate supply of electricity to meet customer demands and cater to remote areas without electricity access.

PEA is responsible for providing electricity in 74 provinces in Thailand—reaching all of the country's provinces except Bangkok, Nonthaburi, and Samut Prakan. We procure electricity from power producers, including the Electricity Generating Authority of Thailand and Very Small Power Producers. This electricity is transmitted to large-scale consumers (e.g., large-sized industries, hotels, and department stores) and medium-sized industries. We also distribute electricity to residential consumers in four of Thailand's regions: North, Northeast, Central, and South. Furthermore, PEA provides comprehensive electrical engineering services—including consultancy, planning, design, construction, installation, and maintenance—through a professional team equipped with modern tools and equipment. We aim to deliver quality, reliable, and efficient services to meet customer needs and ensure the highest possible level of satisfaction.

Vision

Smart Energy for Better Life and Sustainability

Mission

PEA is responsible for the provision of standardized electricity services and related business to attain customer's satisfaction on products and services through PEA's continual corporate development plan with the recognition of social and environmental responsibility.

1.2 SUSTAINABILITY IN PEA

In 2021, the National Energy Policy Council ratified a visionary energy policy, charting a definitive course towards carbon neutrality by 2050 and achieving Net Zero by 2065. This policy, articulated through the 4D1E framework—Digitalization, De-centralization, De-regulation, De-carbonization, and Electrification—signifies a transformative approach to energy management. It sets ambitious targets, aiming for renewable electricity to constitute approximately 68% of the total electricity supply by 2040, and an impressive 74% by 2050.

As a cornerstone of the national electric power system, PEA is poised to play a pivotal role in this transformation. Recognizing its foundational role in spearheading decarbonization and ensuring a just transition, PEA's strategic vision for 2024–2028 emphasizes the digitalization, modernization, and greening of the grid. Concurrently, PEA is diligently crafting a roadmap to attain carbon neutrality and Net Zero emissions, positioning itself as the infrastructure linchpin for a low-carbon economy and championing the proliferation of renewable electricity. In the long term, PEA will remain steadfast in its commitment to provisioning sustainable energy and utilities for all, echoing the nation's aspirations.

PEA also regularly identify and prioritize material topics through materiality assessment to ensure PEA can address the most material issues to its organization and stakeholders. Its strategies are meticulously aligned with its material topics, derived from an exhaustive materiality assessment process. This process is tailored to discern environmental, social, and governance impacts, offering a lucid perspective on business risks and opportunities. These materiality topics are encapsulated within the 3P paradigm—Performance, People, and Planet. This paradigm underscores PEA's unwavering dedication to augmenting performance efficiency, elevating governance standards, enhancing stakeholders' quality of life, and proactively addressing climate-centric challenges in its entire operations, starting from own operations, including improved energy efficiency at PEA's offices, increased use of electricity vehicles (EV) and renewable energy, to decarbonize distribution network, including grid modernization and digitalization, grid integration for EV. For discerning investors, PEA has emerged as a beacon of sustainable vision and action.

PEA is committed to conduct environmental assessments (i.e. Initial Environmental Examination: IEE), where applicable, to ensure that project development complies with relevant laws and regulations and minimizes negative impacts to the extent possible. The IEE process includes economic and social benefits analysis, and environmental assessment, including biological resources as well as mitigation and monitoring measures.

1.3 CLIMATE CHANGE MANAGEMENT

As electricity utilities are the foundation of decarbonization process, PEA places great importance to support transition for users towards low carbon economy and Net Zero. PEA aims to decarbonize the distribution network through various measures including investments in grid moderation and development of microgrid. The microgrid will operate independently, known as off-grid, which suitable for isolated location like remote islands. It will be powered by solar panels with batteries, and fossil fuel generators will be used only for emergency back-up. In addition, as electricity distribution operator, PEA also intends to provide interim solutions for greenhouse gas (GHG) emissions reduction, while strengthening climate resilience. Below is an example of a project to support reduction of GHG emissions whilst ensuring that critical services are not impacted by the effects of climate change.

The Importance of Grid Connected Electricity to Samui and Tao islands

As part of its strategy to mitigate climate change, Thailand has set ambitious goals for its transportation sector, aiming for at least 15% of vehicles and motorbikes to be electric by 2030 in Surat Thani[1]. For island systems like Tao and Samui islands, which are key tourist destinations, this transition will necessitate greater security of electricity supply to ensure that critical services can be maintained. The introduction of submarine cable projects is pivotal in this regard, offering a sustainable and secure solution to replace on-site diesel generators. This not only supports the anticipated high demand from tourists and economic growth but also aligns with national efforts to mitigate climate impacts.

The enhanced interconnection of the islands to the mainland will also be critical for climate change adaptation. The islands are confronting a pressing water crisis exacerbated by climate change[2] due to the increase of severe whether when no mitigation is in place[3]. Increased population and tourist activity have caused the demand for fresh water to spike, resulting in shortages with the additional uncertainty of precipitation[4], the islands could face critical water resource supply. The implementation of secure electricity through submarine

[1] United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP). (2022). Energy Transition Pathways for the 2030 Agenda Sustainable Energy Transition Road Map for Surat Thani Province, Thailand. United Nations publication. ST/ESCAP/3036.

[2] Board, J. (2023). N FOCUS: 'We are in a crisis right now' - Koh Samui enduring severe water shortages as tourism demand booms. Channel News Asia.

[3] World Bank Group, Asian Development Bank. (2021) Thailand: Climate Risk Country Profile. Washington, DC: World Bank Group.

[4] IPCC. (2023). Climate Change 2021: The Physical Science Basis. Summary for Policymakers. In: Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.

cables will unlock the potential for improved fresh water desalination, purification and distribution facilities. These facilities, which are energy-intensive, will become more feasible and efficient, addressing the water scarcity while reducing the reliance on fossil fuel consumption associated with transporting water from the mainland.

This strategic move towards enhancing energy security through submarine cables, coupled with the establishment of improved desalination, purification and distribution facilities, exemplifies a holistic approach to climate change adaptation. It ensures Tao and Samui islands will meet their future energy demands in a secure and sustainable manner, supporting Thailand's national environmental objectives and paving the way for resilient, eco-friendly tourism and community development[5].The combination of electrification of transport and projected increased electricity demand for water supply caused by climate change may represent a risk to essential services on the islands. The proposed interconnection is a critical adaptation measure which will substantially reduce climate risk whilst ensuring energy security of supply.

2. SUSTAINABLE FINANCE FRAMEWORK

PEA has developed a Sustainable Finance Framework in accordance with PEA's sustainability approaches and designed in compliance with the Green Bond Principles (2021), Social Bond Principles (2023), and Sustainability Bond Guidelines (2021) published by the International Capital Market Association; the Green Loan Principles (2023) and Social Loan Principles (2023) published jointly by the Loan Market Association, the Loan Syndications and Trading Association, and the Asia Pacific Loan Market Association; as well as the Association for Southeast Asian Nations (ASEAN) Green, Social, and Sustainability Bond Standards 2018 developed by the ASEAN Capital Markets Forum. The framework consists of the following core components:

1) Use of Proceeds
2) Process for Project Evaluation and Selection
3) Management of Proceeds
4) Reporting
5) External Review

[5] Tangwanichgopong, S. (2019). Thailand gears up to protect its tourism sector from climate change. German Cooperation. Accessed from: https://www.thai-german-cooperation.info/en_US/thailand-gears-up-to-protect-its-tourism-sector-from-climate-change/.

2.1 USE OF PROCEEDS

The proceeds of any bonds, loans (collectively known as sustainable finance instruments: "SFIs") issued under this framework will be allocated to finance and/or refinance, either wholly or in part, investments in existing projects and new specified initiatives aimed at advancing PEA's sustainability agenda. The eligibility criteria have been mapped to the relevant United Nations Sustainable Development Goals.

The green eligible projects are aligned with the ASEAN Taxonomy for Sustainable Finance Version 3. Below is a summary of the eligible projects:

Eligible Sustainability Projects Categories

ICMA-Eligible Category and Relevant UN SDGs	Eligible Projects	Intended Environmental and/or Social Benefit	Relevant ASEAN Taxonomy (version 3)
Green projects			
Renewable Energy 	Projects encompassing various domains, including production, transmission and distribution, appliances, and product development of renewable energy Example of project(s): • Microgrid Development at Phaluai island, Suratthani Province Project to establish a small-scale localized and independent energy system on the island of Koh Phaluai. It will be powered by solar panels with batteries, and fossil fuel generators will be used only for emergency back-up.	• Production, transmission, and distribution of renewable energy sources • Reduction of CO_2 and other GHG emissions while ensuring that the emission of the grid will be below 100 gCO2e/kWh	EO1: Climate Change Mitigation • 351[013] Hybrid fossil, renewable power generation, T&D and/or energy storage for Island Systems • 351[071] Transmission and distribution (T&D) of electricity
Climate Change Adaptation 	Projects designed to enhance resilience and adaptation to climate change impacts, with a focus on sustainable energy solutions and reducing resource vulnerability. Example of project(s): • The 115 kV Submarine Cable Extension to Samui Island, Suratthani Province Project for Replacement and Power Reinforcement. This initiative focuses on boosting the electricity transmission capabilities to Koh Samui through advanced undersea cable technology.	• Submarine cable will help: ○ Increase energy capacity and security for island systems, aiding in their adaptation to changing policies and supporting economic growth and the well-being of residents and visitors amid climate change.	EO2: Climate Change Adaptation • 351[071] Transmission and distribution (T&D) of electricity

ICMA-Eligible Category and Relevant UN SDGs	Eligible Projects	Intended Environmental and/or Social Benefit	Relevant ASEAN Taxonomy (version 3)
 	• The Submarine Cable Extension to Tao Island, Suratthani Province Project is building underwater cable infrastructure to provide reliable electricity to Koh Tao Island.	○ Enable the operation of energy-intensive infrastructure such as fresh water purification facilities, addressing the islands' water crisis and reducing dependency on fossil fuels for water transportation from the mainland.	
Social projects			
Affordable Basic Infrastructure 	Projects that focus on enhancing energy accessibility, particularly to areas without access to electricity, and elevating the quality of life for beneficiaries Example of project(s): • Agricultural Electrification Project, 3rd Stage to extend the electrical grid to agricultural areas without access to electricity • Power System Development on Islands (Kraten (Tan) island) to enhance the electricity infrastructure on various islands, including Koh Kra-Ten	• Enhancing energy accessibility and reliability, which in turn reduce usage of diesel generators; and elevating the quality of life for beneficiaries Target groups: people in remote areas	N/A

ICMA-Eligible Category and Relevant UN SDGs	Eligible Projects	Intended Environmental and/or Social Benefit	Relevant ASEAN Taxonomy (version 3)
	• New Rural Household Electrification, Phase 3, which is expanding electricity access to new households using overhead transmission lines		

ASEAN = Association of Southeast Asian Nations, ICMA = International Capital Markets Association, SDG = Sustainable Development Goals, UN = United Nations, EO = Environmental Objective

Source: Provincial Electricity Authority

Exclusions

In line with the ASEAN Sustainability Bond Standards, the net proceeds of sustainability bonds, loans, and other financing instruments issued under this framework will not be used to finance and/or refinance projects, assets, or expenditures that are ineligible according to ASEAN Green Bond Standards and ASEAN Social Bond Standards (i.e., fossil-fuel power generation projects and projects involving activities that pose social impacts related to alcohol, gambling, tobacco and weaponry.)

2.2 PROCESS FOR PROJECT SELECTION AND EVALUATION

The Environmental, Social, and Governance (ESG) Bond Committee established by the Governor, comprising representatives from the offices of Accounting and Finance, Planning and Engineering, Corporate Strategy, Engineering, Grid Operation and Sustainability Management, and Corporate Communication will oversee the evaluation and selection of projects, assets, and expenditures. This committee is mandated to align the selection with PEA's sustainability objectives, this Sustainable Finance Framework, and international best practices.

Selection Criteria

Projects seeking funding through the SFIs must fulfill four core criteria:

1. Alignment with PEA's material topics, categorized within the 3P paradigm—Performance, People, Planet
2. Demonstrable and quantifiable environmental or social impact
3. Compliance with applicable ASEAN Taxonomy Activities
4. Strategic alignment with Thailand's 4D1E energy framework and PEA’s 2023–2026 strategic objectives

Evaluation Steps

1. **Committee Screening**. The ESG Bond Committee conducts an initial review to assess project alignment with set criteria in section 2.1.
2. **In-Depth Analysis**. Projects that pass the initial review undergo detailed cost-benefit and greenhouse gas impact assessments.

3. **Approval**. The final portfolio of vetted projects is submitted to the Governor for final approval and the allocation of bond proceeds.

This procedure will be repeated to ensure that eligible projects, assets, and expenditures are in accordance with the Sustainable Finance Framework. This will enable accurate tracking and monitoring of both funding and the eligible portfolio. The composition of the ESG Bond Committee helps in the governance of the process and ensures that proposed projects meet the eligibility criteria. The composition is subject to change as appropriate.

2.3 MANAGEMENT OF PROCEEDS

The net proceeds from the issuance of the SFIs will be earmarked for allocation to finance and/or refinance the eligible projects, as defined in the Use of Proceeds section of this framework. PEA ensures that, at all times, the amount of proceeds allocated to eligible projects will equal or exceed the balance of net proceeds from the outstanding instruments.

PEA will implement an internal tracking, providing a clear link between the SFIs proceeds and their allocation to eligible projects. This includes details such as the allocation amount, project name, expected sustainability impact, and completion status.

Until full allocation, any unallocated proceeds may be temporarily placed in cash, cash equivalents, or invested in other short-term financial instruments that align with PEA's liquidity management and investment policies. PEA commits to make best efforts to ensure that no proceeds will be invested in fossil-fuel related projects or any activities that contradicts its sustainability objectives.

2.4 REPORTING

PEA will publish updates of the allocation of the proceeds of the SFIs and the updates will be made publicly available on PEA's official website, annually until full allocation, in case of material changes to PEA’s operations and features of SFIs and in case of material changes. These assurances reaffirm PEA's commitment to transparency and rigorous management of SFI proceeds:

1) **Allocation Reporting**. PEA will publish an annual allocation report, detailing the projects financed, the amount allocated, and the balance of unallocated proceeds.
   The allocation report will include the following information:

- confirmation that funds are allocated eligible assets, projects, and expenditures within this framework;
- total amount of eligible assets;
- list of sustainable finance instruments issued and their outstanding amounts;
- breakdown of eligible assets by eligible category;
- share of new financing and refinancing; and
- balance of unallocated proceeds at the reporting end-period.

2) **Impact Reporting**. PEA will also annually publish an impact report. This report will outline the estimated environmental and social impacts of the financed projects, where possible, supported by quantitative and qualitative performance metrics.

Impact Metrics

ICMA-Eligible Category and UN SDGs	Sample Impact Metrics
Renewable Energy	- MWh of renewable energy generated - Reduction in CO2 emissions (tonnes/year) - Capacity of renewable energy installed (MW)
Climate Change Adaptation	- Number of on-site diesel generators replaced - Number of households newly connected to the grid provided by the submarine cables
Affordable Basic Infrastructure	- Number of households newly connected to the grid - Improvement in energy reliability (% uptime)

MW = megawatts

Source: Provincial Electricity Authority

3. EXTERNAL REVIEW

PEA will seek a second-party opinion from a reputable external reviewer with in-depth expertise in sustainable finance and ESG criteria. This engagement will be orchestrated to provide an independent and comprehensive opinion on the alignment and rigor of PEA's sustainable finance framework with international best practices.

4. FUTURE AMENDMENTS TO THE FRAMEWORK

As sustainable finance evolves, the framework will be updated regularly to remain aligned with industry best practices and emerging standards. PEA recognizes the importance of adaptability and will ensure that any future modifications to the sustainable finance framework are done systematically and transparently.

PEA

PROVINCIAL ELECTRICITY AUTHORITY